PICTURE OF THE MONTH

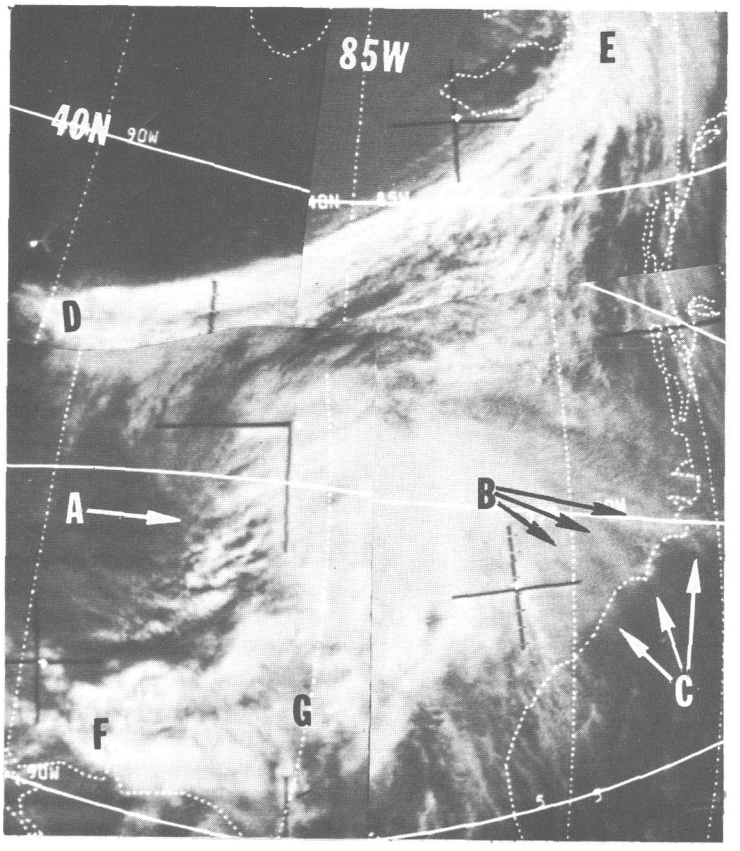

FIGURE 1.—An example of a prefrontal squall line. ESSA 1 photomosaic. Pass 1470, 1914 GMT, May 16, 1966.

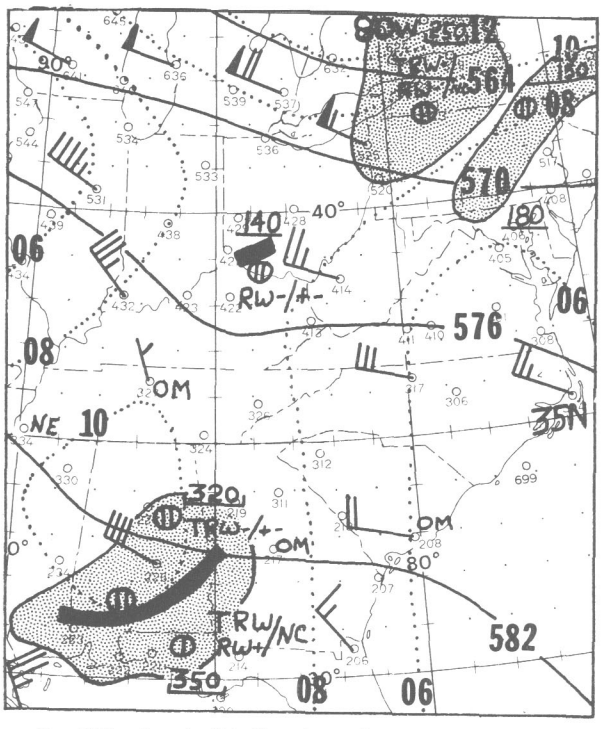

FIGURE 2.—500-mb. (solid lines) and vorticity (dotted lines) analyses. 1800 GMT, May 16, 1966. Prepared from 1800 GMT winds aloft data and interpolation between the 1200 GMT and 0000 GMT computer-analyzed height and vorticity fields. Radar reports are denoted by the shaded areas.

Commencing with this issue, the "Picture of the Month" will illustrate an operational application of the ESSA 1 television data or the Automatic Picture Transmission (APT) data from ESSA 2. Daily analysis of hundreds of satellite pictures at National Environmental Satellite Center has led to a large number of empirical picture interpretaton rules that have proven valuable for meteorological use. The widespread reception of APT from ESSA 2 provides the opportunity to present to a large audience the discussions that have formerly been available only to those at the analysis center and to expand the utility of these new data.

The ESSA 1 photomosaic (fig. 1) shows the cloud pattern associated with a squall line over southeastern United States. The analyses in figure 2 show that the squall line is located just in advance of a short-wave 500-mb. trough in the area of strongest positive vorticity advection. Radar reports near the time of the satellite pictures depict a solid line of echoes between points F and G (fig. 1). Small cloud lines tend to spiral toward a point and suggest a center of circulation at point A. This is in close agreement with the analyzed position of the surface Low over northern Alabama (fig. 3). The large shield of clouds east and northeast of the squall line is mostly cirrus that has sheared from the tops of the thunderstorms which developed in the area of maximum vertical motion. This cloud shield is being advected northeastward. However, it exhibits striations (B) that taper toward the southeast (points C) which indicate anticyclonic turning of the high-level winds. This anticyclonic turning causes the dissipation of the cirrus near the east coast (points C). The multilayered cloud band of the cold front lies between points D and E.

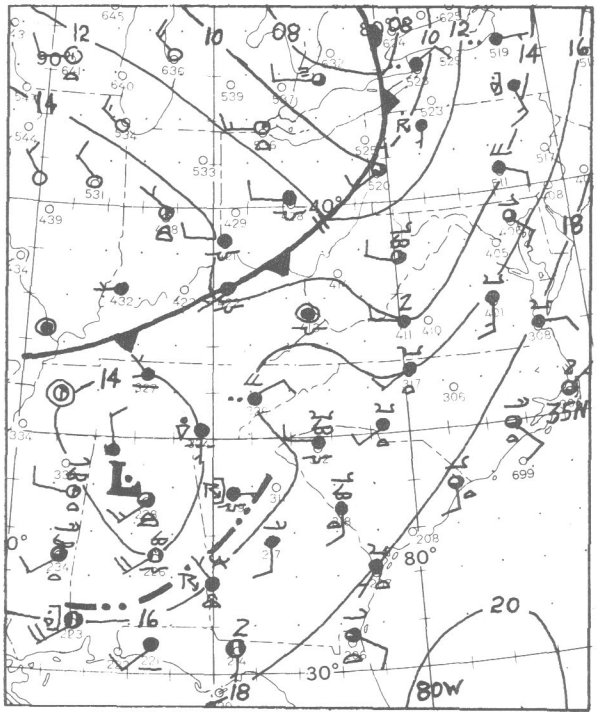

FIGURE 3.—Surface analysis 1800 GMT, May 16, 1966.